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ANALYSIS OF ALL PHOTO FLIGHTS

The attached table summarizes the results of the photo activities at Watertown from the first of February through the dates of my visit. Although I was actually at the site on the 23rd, I do not believe that any photo flights were scheduled, or did any take place. Thus, the attached list should be complete for the period February 1 through February 24.

I had a chance to check over some of the data with [] and I believe that the data is consistent with that which he has received previously, and which served as the basis for his daily reports. My desire in preparing this table was to make the data available in a form in which it could be readily analyzed. I believe that the people on the test flight program were sufficiently impressed with the value of doing this sort of tabulation that we will have it available on a two-week basis from now on.

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Results of activities February 1-February 20.

In a total of 23 Photo ^{by 13 Training} Test Flights, there were 10 malfunctions. These may be divided into three types for study.

First, those due to unimportant malfunctions, such as PTF 95 where the light did not go out indicating the end of the film, and there was one such.

Second, malfunctions have resulted from improper loading or pre-flight checking such as in Flights 93, 85, 76 and 70. It is gratifying to note that the same error was not made twice, and as training and experience improve, the number of such is expected to decrease.

The third type is true equipment malfunction. PTF's 88, 84, 77 and 75 are of this sort. Here it should be noted that all these flights were in Article 346, and are related to a malfunction of the IMC unit. This trouble is being attached by a minor re-design of the IMC unit to make it insensitive to alignment and an examination of Article 346 is requested.

The tenth malfunction, PTF 87, was the result of a component, a diode noise suppresser, shorting out. This in itself did not stop the cameras but it resulted in some or all of the lights going out, and then the Pilot turned off the configuration. This fault is important for its result was the same as a true camera malfunction - no pictures. It will be fixed by increased inspection and replacement by a unit of higher rating.

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PTF 80 had a temporary loss of power which may have caused a malfunction in the air, but post flight check indicated everything in operation except for a noise filter open. The pilot may not have restored the camera power after the power loss which extinguished the lights.

I was quite encouraged to observe that from Photo Flight 89 through the subsequent eight flights, there was only one malfunction which I would consider serious. This had to do with Photo Flight 93 involving a film breakage resulting from a maladjustment in the camera magazine. All of the rest of the flights were, from a camera point of view, satisfactory. It is unfortunate that only a small amount of film was exposed for a variety of reasons, including aircraft trouble and weather. It will be observed that several serial numbers of each type of configuration were used during this period, and so I feel that we have some reason for confidence. I do not consider the problem of bringing indicating lights up to absolute reliability a serious one, and I am sure that the interaction of Article 346 and the various cameras can be cleared by mutual cooperation between the various service personnel. At the time of my leaving, there was good evidence that this was in process.

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RESULTS OF ACTIVITIES 2/1 through 2/20/56

Date	PTF	Conf. & Unit	Article	Load	No. of Exposures	Post Check	Mal function	Remarks
2/22	97	A1 #5	345	390-1800	10-112	OK	No	Flt aborted. A/C trouble
2/22	96	A2 #4	342	1800	524	OK	No	K+10 5 hrs cldy
2/21	95	A2 #3	345	1445	898	OK	yes	C light did not go out at end of film.
2/18	94	A1 #3	344					No photos due to late take off.
2/17	93	A1 #5	347	390-1600	180-294	OK	Yes	Film breakage (RO) overload drive disengage rocker camera.
2/17	92	A2 #4	345	1800	240	OK	No	Pilot turned off cameras, one light out, cause not known.
2/17	91	A1	344	360-815			No.	Cancelled. Article problems
2/16	90	A1	344	ready but not loaded				engine change & short flts.
2/15	89	A2 #3	344	100	38	OK	No	Lens cap on one camera
2/15	88	A2 #5	346	1800	14	OK	Yes	All lights out after 15 min. operation.
2/15	87	A1 #4	343	380-1800	352-1157	OK	Yes	Diode shorted, light went out, Config. OK. oil condensation window
2/14	86	A1 #4	344	390-700	38-97	OK	No	Test flight, camera on-off
2/14	85	A1 #5	343	250-1700	253-304	NG	Yes	Film jam.
2/14	84	A2 #4	346	800	100	NG	Yes	IMC jammed.
2/14	83	Not loaded						
2/13	82	A1 #4	346	390-1800	290-1157	NG	No	Rocking mount breaker open post check, all film ran through.
2/11	81	A1 #4	344	ready but not flown in article				
2/10	80	A2 #4	346	390-1800	34	OK	?	Power failure A/C indicating lights out.
2/10	79	A1 #5	345	390-1800	240-468	OK	No	Oil leak in art. Oil on windows. Question of shutter function
2/9	78	A-1 #4	344	390-1800	300-850	OK	no	Vacuum fluctuated.
2/9	77	A2 #4	346	1800	79	OK	Yes	IMC bind-up
2/9	76	A2 #3	345	390-1800	213, 70, 213-331	NG	Yes	IMC timing adjustment
2/8	75	A2 #3	346	1300	312	NG	Yes	IMC bind up
2/7	74	A2 #4	345	400	245	OK	No	
2/3	73	A1 #3	344	390-1800	60-189	OK	No	
2/3	72	Cancelled						
2/2	71	A1 #2	344	390-400	479-317	OK	No	
2/2	70	A2 #1	345	1800	65	OK	Yes	No vacuum because caps on lines in wheel well.
2/1	69	A1 #2	344	390-400				Cancelled, weather.

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*SECRET*Flight Line Spacing

The Camera Flight Test Group has been requested to fly some parallel flight lines in order to establish practical coverage. Below is presented the history of the four flights to date. I am not aware of the photographic success of PTF 96 as the material was being unloaded at the time I left the site.

Requested Runs
Special Parallel Flight Lines

PTF #89 2/15	A-2 #3 in A/C 344. 10% filter, red and yellow filters. One lens cap left on.
PTF #91 2/17	A-1 #3 in A/C 344. Cancelled. A/C problems
PTF #94 2/20	A-1 #3 in A/C 344. A/C delayed take off till too late for photography.
PTF #96	A-1 #3 in A/C 344. Post flight check OK and no malfunctions reported by the pilot. Broken clouds.

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Photo Utilization of Article 344

Two requests have come from Project Headquarters for special photo runs. The first of these was to determine a calibration of the altimeter by photogrammetric methods. I examined the details of the four flights required to obtain this information. They are set forth below.

Requested Runs
Special Altitude Check Flight
K+20, K, K-20

PTF #73 2/3	A-1 #3 in 344. Attempt to calibrate altitude. Camera operation OK, but A/C operated only at K but not at K+20 or K-20 as requested. Test will be re-run after engine change.
PTF #78 2/9	A-1 #4 in 344. Camera operation OK but A/C did not reach maximum altitude
PTF #81 2/11	A-1 #4 in 344 loaded but no flight. "A/C problems."
PTF #86 2/14	A-1 #4 in 344. Operation OK. Mission accomplished.

(Engine changes in 344 2/3, 2/16)

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